Against the Grain

Volume 15 | Issue 4 Article 13

September 2003

ATG Special Report: Part IV -- Libraries In The Cyberage -- Impact of Digitized Collections on the Humanities

Mark Y. Herring
Winthrop University, herringm@winthrop.edu

Recommended Citation
Herring, Mark Y. (2003) "ATG Special Report: Part IV -- Libraries In The Cyberage -- Impact of Digitized Collections on the Humanities," *Against the Grain*: Vol. 15: Iss. 4, Article 13.
DOI: https://doi.org/10.7771/2380-176X.4480

ATG Special Report: Part IV — Libraries In The Cyberage — Impact of Digitized Collections on the Humanities

by **Mark Y. Herring** (Dean of Library Services, Dacus Library, Winthrop University) <herringm@winthrop.edu>

Please Note: *This is the final forum in a four part series. See* ***Against the Grain****, Sept. 2002, v.14#4, pp.42-59 for part one. See* ***Against the Grain****, Nov. 2002, v.14#5, pp.32-59 for part two. See* ***Against the Grain****, April 2003, v.15#2, pp.46-53 for part three. —* ***ATG***

With more and more collections being digitized daily, what future is there for paper? Already the *Chronicle of Higher Education* incessantly sends its reporters in search of the dead book. First, there was a colloquy in August 2002, followed by an article declaring the demise of the book. Experts now report that by the year 2005, no publisher will likely undertake the printing of multi-volume encyclopedias in paper. Of course, the digitized product will still cost the same as its paper predecessor. The *Encyclopedia of World Art* is a good case in point: both its formats cost $8K. This digitizing trend is rapidly overtaking what libraries call their reference collections, and while this is not altogether a bad thing, one must question its ubiquity. More and more reference materials come in digitized format *alone*. And before much longer, if Congress has its way, the entire government documents program will be, more or less, available over the Web.

What is disconcerting about all this is how little administrators, both library and non-library, understand what's happening. Because each can surf over to *Whitehouse.gov* anytime he pleases, one believes *everything* is on the Web; the other believes most will be. For library administrators this means less space is needed for actual volumes, but more equipment is required and no real cost reduction is enjoyed. For non-library administrators it means (though not really) more money can be diverted from the library (and, naturally, to sports!). In my own state of South Carolina, otherwise intelligent beings ruminate on the obsolescence of libraries. Scenarios frequently make the following summarizable form: a state will buy one book, digitize it, and "everyone" will have access to it.

Imagine the public outcry if someone said that colleges and universities would no longer field any sports teams at all, for all would henceforth become virtual. Spectators would simply key in the kind of game they want and, presto! there it will be. Think of the savings! No more teams, coaches, insurance premiums and most of all, no more "student"-athletes who come to get an education and leave with neither an NFL contract nor the knowledge of how to spell their names.

Of course what *most* of us in librarianship know is that what is on the Internet constitutes about 15 percent (and that's being overly generous) of all that is needed to have a good library support a good educational program. Furthermore, we also know just how expensive it is to run both conventional and virtual libraries *simultaneously*. Today, we must do some of both on the same static (and now declining) budgets we've been running conventional ones on for the last two decades.

No discipline is safe from the voracious byte, and the question that presents itself now is this: with all the digitization ongoing, some at the expense of paper, are we constructing a future that leaves behind those who are not caught up in the digitized age? Furthermore, is there a future for brick and mortar libraries as more and more collections become digitized (you bet there is, but try making it in this now ethereal environment!)? Bear in mind that the last university in the California system tried to open with one very important building missing: the library. It proved a colossal failure. Bear in mind that **CalPoly** could not create a fully virtual library after a three-year study (and this with the largest concentration of engineers and computer geeks on one campus)! Yet, some persist in making this wave the tsunami of our future. Just what sort of history are we creating where every young person who walks onto a college campus, assuming those will not be digitized at some later date (just think: one campus online with only a handful of professors teaching everything in one bandwidth), thinks history began just ten years ago, or about the length of nearly all digitized archives (save **JSTOR**).

Looking at all these questions were three well-qualified individuals: **Mr. Bruce Heterick**, **Dr. Edward Lee** and **Dr. Ravi Sharma**.

Mr. Heterick is Director of Library Relations at **JSTOR**, responsible for managing constituent relations on a global basis. Prior to coming to **JSTOR**, **Mr. Heterick** spent more than a decade in the library field, working for such companies as **The Faxon Company** and **Blackwell's Information Services**. **Mr. Heterick** did not come merely to tout **JSTOR**, the only digitized archive online so far that seeks to preserve volume 1 number 1 of each of some 200 journal titles. **JSTOR** also represents the first serious effort to have something when the dust settles. Without it, libraries would, and therefore every student, face a serious brain drain.

Dr. Lee is an historian and Associate Professor at **Winthrop University** in Rock Hill, SC. **Dr. Lee** has served as President of the **South Carolina Historical Association** and is a charter member of the **Winthrop Archives' Senior Research Associate Program**. He has published numerous books on American history, including *The Civil War in South Carolina*. **Dr. Lee** regaled the audience about the scholar's trade, his *quellenforschuung* of looking and sleuthing for the right puzzle piece that makes a particular historical picture complete. **Lee** painted a picture that is at once aesthetic and digital.

Finally, **Dr. Ravi Sharma** electrified the audience with a talk delivered with all the zeal of a colporteur. **Sharma** is Director of the Library at **West Virginia College** in Institute, WV, and publisher of *Library Times International*. **Dr. Sharma** has published more than 200 articles on a variety of library topics and has received numerous awards, including the **Humphrey-OCLC-Forest Press Award** for "significant contribution to international librarianship." **Sharma** points out just how difficult this business of planting each foot in two different worlds is for the librarian. One foot is firmly planted in the larger ocean of resources in paper while the other is sinking in an ever-increasing one of digitized materials. The budget that most of us are given with which to 'sink or swim,' **Sharma** points out, is the equivalent of throwing a drowning man a dog bone.

This represents the final installment of the talks that were given in "Libraries in the CyberAge" a grant **Ron Chepesiuk** and I co-directed during the 2000-2001 academic year. The forums were sponsored by a grant from the **South Carolina Humanities Council** and were held in three different parts of the state. The other talks given in these forums appeared in ***Against the Grain*** in the September, November (2002) and April (2003) issues.

Bricks, Clicks, Books, and Docs: Libraries In The Digital Age

by **J. Edward Lee, Ph.D.** (Historian and Associate Professor, Winthrop University, Rock Hill, SC)

Let me begin by taking you back 100 years to the dawn of the twentieth century. In 1900, **Sherman's** scars on South Carolina's landscape were still fresh. It had been only thirty-five years, slightly more than a generation, since **William Tecumseh Sherman** had sliced a fifty-mile wide pathway across the heart of the Palmetto State. And, since 1865, South Carolina had been struggling to its feet, feeling the lin-

continued on page 42

gering sharp pain of what **Sherman** labeled "total war," stern punishment administered to the civilian population (the women, the children, the senior adults) and to the land, the soil itself. It was the war and the debris of the war was evident in South Carolina thirty-five years after **Sherman's** March to the Sea.

The survivors of **Sherman's** March here in upstate South Carolina lived mostly, in 1900, on small, modest farms — trying by the sweat of their brows to raise enough food to feed their families, praying for the cooperation of the weather (a little rain, now and then).

So, at the dawn of the twentieth century that was the bleak situation here, where we meet tonight. Twenty miles southwest of this room is a small farming community called Lowrys, where, before 1865, cotton had been king. But, in 1900, the soil was (like many of the people) exhausted, drained of its nutrients. But the farmers of Lowrys, when they weren't cursing the drought, and re-fighting the war, dreamed of a library, where books could be collected, where literature and mathematics and science could be stored. They wanted the names of **Sir Walter Scott**, **James Fenimore Cooper**, **Thomas Carlyle**, **William Thackarey** and **Charles Dickens** to be familiar to their children. The Lowrys farmers of 1900 had no money, but they were determined to look for opportunities to plant the seeds of such a library.

A wealthy Baltimore, Maryland, pharmacist, **Dr. Delano Fitzgerald**, knew the community. He vacationed in the South, hunting birds, quail and dove. The citizens of Lowrys lobbied **Dr. Fitzgerald** for funds to construct a small library. They appealed to his sense of generosity and his love of this special place. And, in 1903, near a site where Union and Confederate troops had clashed just a few decades earlier, the **People's Free Library** was born.

The People's Free Library boasted 1,381 volumes. It was, for a time, the tenth largest library in the state. Magazines, newspapers and reference works were available. That library is important to me, as I ponder the future of libraries in the cyberage...a time in which some people shout, "Ink is dead. Long live the pixel!" The **People's Free Library** of Lowrys, South Carolina, was built and operated with donations (from friends like **Dr. Fitzgerald** and others) and opened its collections to the people (black and white, male and female) — free of charge. Volunteers freely gave their time to keep the library's doors open. When not enough farmers could leave their fields to browse the shelves, the library enlisted a local farmer, **Walter Bankhead**, to drive what, in 1904, was the first bookmobile (wagonmobile, actually) in South Carolina. **Mr. Bankhead** made a two county circuit of twenty-two stops at homes, stores and schools to deliver to the people cabinets of books.

There is much to admire about the **People's Free Library**. One hundred years later, as we think about the impact of digitized collections on this library, and other libraries, and upon the people we serve, it seems that we can make a few observations about the future — keeping in mind the lessons learned from the legacy of **Walter Bankhead** and his horse-drawn wagon full of crates of books and the financial backing of **Dr. Delano Fitzgerald**.

Our university's library, **Dacus Library**, like many libraries, is near capacity. The figure I have is 95-98 percent full. Space is at a premium. We are in desperate need of wealthy patrons like **Dr. Delano Fitzgerald**. We need funds in order to digitize books and journals that, with modern technology, can be reduced to small discs of information, freeing up valuable floor space.

Just in the last five years I have noticed my students almost exclusively preferring digitized formats. They are comfortable with them and use them for their book reviews and long papers and assignments. Their research has, in fact, been sharpened by the use of CD-ROMS and digitized photographs and databases which make everything from the *Official Records of the War of Rebellion* to the *Warren Commission Report* just a few clicks away. Scholarship has been enhanced — not diminished — by such delivery systems.

Now, I live in the past. I am like the small boy in the movie *The Sixth Sense* (I think the character's name, was **Cole Sear**) who tearfully told psychotherapist **Bruce Willis** in the movie, "I see dead people." That's what historians do, basically. We see dead people. But we must accept reality. **George Allen**, the famous Washington Redskins coach was right: "The future is now."

In the final month of 2000, digitized collections are here, they are accessible, and I suggest they will become increasingly affordable. Speaking of dead people, we must still seek out **Dr. Delano Fitzgerald** B types, men and women who will help us finance the transfer of printed material into digitized form. That's why groups of friends — library friends — are so critical in making the leap into the cyber-age.

Clicks and bricks and books. There will always be a need for books, but I must say that, as I survey the journals and literature of my field, many resources will lose none of their potency if they are re-born in digitized form. After we lobby for funds (remember: the people of Lowrys spent three years convincing **Dr. Fitzgerald** of the wisdom of their dream of a people's free library) and that phase is completed, our students and the general public — who doesn't live in the past like me — will walk into cyberage libraries where collections are brought into clear view with the clicks of computers. I can't see anyone suffering from this change. Digital pictures, charts, eye-popping multimedia attachments and other graphics are getting better and better as technology improves; and to resist this change is futile and short-sighted. The future is now . . . as **Coach Allen** stressed.

I entitled my comments "Bricks, Clicks, Books, and Docs." Let me address the "docs" — the documents. We will always need libraries, citadels of brick where the collections are housed either in digital or conventional form. And we do need to see each other in the flesh from time to time. We cannot be hermits. Just as the card catalog, with its alphabetical drawers giving way to online directories, the future will see our libraries housing space-conscious digital collections. And they must be free, accessible to the people — as **Dr. Fitzgerald's** library in Lowrys functioned. We are going to, as **Walter Bankhead** did 100 years ago, think of ways to take the collections to the people. I'm really pretty optimistic about what we can accomplish.

Documents — government and archival— pose special problems. The *Congressional Record*, federal statutes, reports of various agencies lose nothing when they are transferred to a digital format. But the raw material of history — letters, diaries and journals full of emotion would be mutilated if they were re-constituted in smaller, more compact, cyber form. I don't want them scanned, digitized or molested in any way.

In our library's archives, we have **George Washington's** 1783 letter to South Carolina's governor **John Mathews**. Students — and scholars — need to hold that letter (with its misspellings) in their hands, to rub their fingers across the parchment and feel the spirit of the general who, in 1783 was warned that after luck in the battlefield and hard-won success at the peace conference, the nation was about to fracture into 13 feuding small units. **George Washington** pleaded with **Governor Mathews** to endorse a strong nation, where states banded together for the common good. Too much was at stake to argue among ourselves — big states vs. small state, agricultural vs. industrial, slave vs. free.

Here I go, seeing dead people again; but I don't want the documents of history altered in anyway. I want **George Washington's** letter preserved — not digitized into some cold transcript accessible by a click. We need to caress the documents of our past (the real thing) whether they are housed in this library or the National Archives of the local history room of the **York County Library**.

Back to the **People's Free Library** of Lowrys, South Carolina for a moment. After a few years of driving his wagon out to the farms, **Walter Bankhead** transferred the collections to a Model T automobile and still later the farmers themselves purchased such cars and were able to drive their families into town to check out books and read the newspapers of the day. A few decades later a bigger and more modern library was built, and the **People's Free Library** was closed and added to the *National Register of Historic Places*.

continued on page 44

Libraries In The Cyberage
from page 42

Such is the nature of change. As lovers of libraries, we must hold fast to the principle that knowledge must be made available, free to the people. How to do that in the digital age is an exciting challenge. I am convinced, nevertheless, that we can do it with a little help from our friends.

The Impact of "Being Digitized" on "Becoming Digital"

by **Bruce Heterick** (Director for Library Relations, JSTOR)

Introduction

Nicholas Negroponte, the widely recognized author and director of **MIT Media Labs**, noted several years ago that there is a difference between being digital and being digitized. I interpret the essence of **Negroponte's** argument to be, at least in the world of scholarly communication, that almost anything can be digitized; but it is the significant change in behavior resulting from something being digitized that truly creates the condition of one becoming digital.

When I consider the impact of digital collections on the Humanities, I cannot entirely consider the question without looking at the behavioral impact that digitized scholarly Humanities literature has had on the entire scholarly system. That includes scholars, publishers and libraries. One early, but potentially important, signal of the breadth of this behavioral impact might be extrapolated from the use of the **JSTOR** archive of scholarly journal literature.

A Brief Overview of JSTOR

JSTOR is a not-for-profit organization founded in 1995 with a broad mission to help the scholarly community take advantage of advances in electronic technologies. Its initial objective has been to build a database comprised of the back volumes of important scholarly research journals, including a significant corpus of Humanities and Social Sciences literature. The goal in building this centrally shared electronic archive has been to lower the system-wide costs associated with storing and preserving these academic materials while simultaneously increasing their use.

Originally a grant project of **The Andrew W. Mellon Foundation**, **JSTOR** does not rely on the **Foundation** for its ongoing support; rather, it has developed an economic model that has enabled it to achieve financial self-sufficiency and independent operation. In its first five years, **JSTOR** has made remarkable progress. As of December 31, 2000, some 910 academic institutions in 40 countries have licensed access to the database, contributing fees to support the preservation and ongoing maintenance of the archive. The organization has delivered on its original promise and is engaged in the process of adding more journals while also reaching out to new scholarly organizations and communities all over the world. It is fair to assert that there has been a clear endorsement from the scholarly community of **JSTOR's** goal to serve as a trusted archive of electronic journal literature.

JSTOR's approach to archiving seeks to balance the needs of libraries, publishers and scholars for the good of the entire system. There are many examples of this, and a few are important to highlight and illustrate how deeply **JSTOR** is committed to its role as an archive.

First, **JSTOR** always digitizes journals back to volume I, issue 1. In doing so, we retain the look and feel of the original publication for preservation purposes and also employ technology to allow enhanced usability for scholars. We scan each journal page as a 600 dpi TIF image and then create a corresponding text file using OCR software. The text files enable full-text searching, while the image files are presented to users for viewing and printing. Users see exact replicas of the original published pages and can navigate through an issue just as they would in the print version. This approach is particularly useful in disciplines such as area studies, where diacritical marks and non-roman character sets are utilized. All of the original content is captured and presented to users.

Next, the **JSTOR** archive does not include current issues. It has always been important to us to not jeopardize our participating publisher's current content revenue streams. We allow publishers to select a moving wall, generally one, three, or five years. The moving wall defines the gap between coverage in **JSTOR** and the most recently published volume of the journal.

Finally, **JSTOR** has adopted an economic model that is cost-based and value-driven. **JSTOR** is licensed on a site-wide basis to academic institutions, meaning that all students, faculty, administrative staff or walk-in library users of a university, college or research center are granted access to the archive. Our goal is to spread the costs of maintaining the archive among as many institutions as possible and to do so in a way that recognizes the value that institutions derive from access.

Today, there are 126 publishers contributing journals to the archive. Three collections are available online: *Arts & Sciences I*, *General Science* and *Ecology & Botany*. Together these collections contain 147 journals, 25 of which date to before 1900 and the oldest of which began publication in 1665. The database contains over 7 million journal pages and almost 600,000 full-length research articles. In 2000 alone, over 3 million articles were printed from the **JSTOR** database, over 8.2 million searches were performed, and users accessed the database more than 33 million times. Usage has effectively doubled in each year of the archive's existence.

While **JSTOR** is clearly not a publisher, providing access to scholarly content over the Internet is something that we have learned a great deal about during our relatively short life. In addition, while we do not profess to be Humanities scholars, or to understand the intricate nuances of scholarly Humanities research, the extensive usage data that **JSTOR** collects on a daily basis is useful in providing some insight into how digitized collections are impacting the use of those collections (particularly in the Humanities) — in essence, giving us a glimpse of how being digitized is having a discernable impact on scholars becoming digital.

The Impact on Publishers

The scholarly publishing community is a key concern in the system-wide constituency that **JSTOR** actively serves. Publishers provide the content, or at least license that content to **JSTOR** in perpetuity, so that **JSTOR** can fully serve its archiving and access mission.

The impact of digitization on publishers is an evolving process, replete with questions about sustainable economic models, appropriate delivery mechanisms, intellectual property and rights management issues. These topics have been articulated and debated at great length over the past few years, so I will not attempt to delve into any of them here. I will, however, spend a few moments discussing a few important influences that we believe **JSTOR** has had on the Humanities publishing community.

At the time **JSTOR** was started, there was very little electronic publishing activity in the Humanities. For many publishers, **JSTOR** was seen as an important "experiment" in determining if electronic Humanities content would be valued and if there was a viable economic model for providing content in this format. Also, at least initially, **JSTOR** was seen as a way for several publishers to begin the process of moving to an electronic publishing model.

I think it is safe to say that **JSTOR** has provided an appropriate vehicle for "unlocking" older literature to Humanities scholars. Literature that was either difficult to access (because of location or the condition of the material itself) or unavailable all together (because the library did not actively collect the title or have the complete run) is now available to scholars everywhere. For publishers, this offers the potential to increase citations of that literature in current scholarship.

The sheer volume of Humanities literature that *should be* archived is somewhat daunting. Certainly, we can argue about what "should be" means in this context. I vaguely remember what a publisher once told me, "Junk is junk. But the history of junk is scholarship." Regardless, **JSTOR** is archiving but a small piece of this corpus of literature and is not in a position to archive even a significant portion of what is currently available. It is important, from a system-wide perspective, that Humanities scholarship have the benefit of multiple archiving solutions, and that other trusted third-parties step up to the plate and begin to address this issue.

The Impact on Libraries

We have all felt the impact, at least in part, of the proliferation of electronic journals and electronic databases available to academic libraries. You may have heard the story of the Middle Eastern sage and folk hero, **Nasruddin**.[1]

The story goes that **Nasruddin** came to the

continued on page 46

market one day and asked: "People, do you know what I want to tell you?"

"No," they answered, "How could we know?"

"Then we have no common ground for discussion," **Nasruddin** replied, and went home.

The next day Nasruddin returned and asked the same question. The people said, "Yes, we know what you want to tell."

"Then there is no need for me to talk," **Nasruddin** said, and went home.

On the third day the people answered, "Some of us know and some do not."

"Well, let those who know tell those who don't," said **Nasruddin**. Then he went home.

A certain level of disintermediation is hinted at in **Nasruddin's** story that is not uncommon to the perceived impact of digitization on the academic library. More and more, faculty and students are finding multiple intermediaries outside of the library to the digitized research content that they desire, and this is creating the perception that the primary role of the library is shifting significantly to a role, less of being an access intermediary, and more of being an economic intermediary for the acquisition of content. At **JSTOR**, we believe that the impact of digitized collections on academic libraries is not one of access disintermediation, but rather of access *reintermediation* — re-establishing the role of the academic library as a valued access intermediary offering well-organized, highly-valued services based upon these digitized collections. These services, in many instances, involve the library facilitating their constituencies (faculty, students, scholars) in becoming digital.

Since its inception, **JSTOR's** goal has been to help participating libraries expand their access role by taking advantage of advances in information technology (i.e. digitization). If we were to look back at the objectives of **JSTOR** when the project was originally conceived [2] and were to evaluate the progress made to date on achieving those objectives, we could easily discern that **JSTOR** has already had a positive impact on libraries.

By creating faithful replications of journal issues, **JSTOR** has helped libraries address issues of conservation and preservation. Incomplete runs (missing issues) of the titles digitized in **JSTOR** are made complete, the service lapses caused by mutilated pages are eliminated and the long-term issues of the deterioration of paper volumes are reduced.

By easing storage problems, **JSTOR** has assisted libraries in addressing vexing economic issues related to the capital costs associated with building additional shelf space, at the same time enabling the reduction of operating costs associated with retrieving and re-shelving back issues from stacks. Many **JSTOR** participants are moving the bound volumes of titles digitized in **JSTOR** to remote storage, thereby freeing shelf space for additional journal literature. In some instances, libraries are getting rid of the paper volumes altogether.

By dramatically improving access to this corpus of journal literature for faculty, students and other scholars, **JSTOR** has helped libraries make available access to collections that may not have previously been collected in paper. Also, libraries have been able to improve service to their various constituencies by making resources available twenty-four hours a day, while eliminating any dependency on physical location.

The Impact on Faculty/Students

J. Robert Oppenheimer, who helped usher the world into the atomic age, once quipped, "The optimist thinks this is the best of all worlds, and the pessimist knows it." With regard to the current state of digitized Humanities literature, we lean toward the optimist's point of view at **JSTOR**, recognizing that continued improvement is required to make Humanities collections more usable. This includes work to be done from a system-wide perspective to improve searchability, expand content and link references in current content to older material. However, one thing that **JSTOR** has shown us, at least to this point, is that faculty and students are using this digitized scholarly literature at unprecedented rates and in unprecedented ways.

Dr. Edward Lee, an historian at **Winthrop University**, observed that he was not anxious to see a 1783 letter from **George Washington** to **Governor Matthews** in digitized format. He felt, and rightly so, that there was immense importance in a scholar having the ability to "touch" and "feel" and "experience" the original. Yet, his assertion has two important long-term problems for the history scholar: (1) convenience — the only scholars that will be able to "touch," "feel" and "experience" the letter are those that come to Rock Hill, SC, and **Winthrop University** where it is physically located; and (2) sustainability — the more hands that touch the letter (especially one that is over 200 years old!), the more brittle and mutilated it becomes. Eventually, the original becomes useless to everyone.

So, while there are certainly limitations on how well a tangible item (like a personal letter or visual art) can be migrated from the analog world to the digital world, there are many scholarly areas where those disadvantages pale in comparison to the striking advantages of improved access.

Usage in JSTOR

JSTOR collects usage data 24 hours a day and sends that data to a dedicated "stats" server at the same time each night. The raw data is then used to create summaries of different attributes of usage that are stored and used in responding to report requests from publishers, libraries and **JSTOR** staff. Several interesting trends are revealed as usage data is analyzed:

Electronic access is increasing the use of older materials at **JSTOR** participating sites.

During the pilot period in 1996, **JSTOR** collected journal circulation and usage data from its test site libraries to create a benchmark of the usage levels of the paper journals. These data were difficult to collect and so one must be careful about conclusions drawn comparing usage of the paper volumes to electronic usage at **JSTOR** sites. It does appear, however, that usage of these journals in electronic form has been much higher than the usage of the same titles in paper. During a three-month period in 1996, students and faculty at five of **JSTOR's** test site libraries accessed the ten original economics and history journals a total of 692 times. During a three month period in 1999, faculty and students at the same five institutions viewed or printed articles from the **JSTOR** archive of the same ten journals a total of 12,581 times!

Anecdotal evidence from circulation activity at libraries indicates that the use of older print journal articles is not growing. That contrasts markedly with usage in **JSTOR**. Growth in the aggregate use of the **JSTOR** database has increased dramatically in the period since 1997 when it first became available. Total accesses to all content in the database increased 4.4 times from 1997 to 1998 and 3 times from 1998 to 1999.

Researchers and students value the interdisciplinary nature of **JSTOR**. The **JSTOR** search interface, by design, requires users to choose either specific titles or disciplines for their searches. Looking at **JSTOR** search logs from a recent week revealed that just under 90 percent of searches specified more than one title. Of the total searches, 58,000 specified whole disciplines (groups of related titles), and of these 69 percent were across more than one discipline. Citation data alone is not a good predictor of electronic usage.

While **JSTOR's** selection criteria for which journals are included in the archive is influenced by the total cites and the **ISI** impact factor of a particular journal, we have found that the most heavily cited articles are not necessarily the most heavily used. Older literature remains valuable in many fields. We find that in most major fields, older articles are well represented among the top ten most frequently used articles. In half of the 15 disciplines in **JSTOR**, the average age of the top ten articles is ten years old or greater. Care should be taken to insure that there is clear understanding of the definition of "value" for research articles.

While usage data provides some helpful insight about how material is being used in comparison to traditional expectations and value measures, we must also be wise in our evaluations. Those articles that push forward research and intellectual understanding may not be the most popular.

The **JSTOR** archive of digitized collections has truly had an impact on the research habits of faculty and students in the Humanities, the teaching methodologies of Humanities faculty, as well as serving other purposes that were never anticipated when the archive was created. One example of an "unanticipated use" comes from the work of **Fred Shapiro**, a linguistic cybersleuth, historical lexicographer, lecturer in legal research at **Yale University** and editor of the forthcoming *Yale Dictionary of Quotations*.[3] **Shapiro** has used **JSTOR** to find much earlier uses of important words and phrases than had previously been known, often significantly pushing back the record as documented by the *Oxford English Dictionary (OED)*. He has already antedated more than 500 important terms. While all of this is very fascinating, **Shapiro** reminds us that it is also *important* by pointing out that "the history of the terminology of a science or social science is a vital component of the history of that science; and an index to the

continued on page 48

Libraries In The Cyberage
from page 46

terminology, setting forth the particulars of the coinage of each term, is an invaluable aid for historians of ideas." When **JSTOR** set out to build a scholarly archive of important journal literature, it never occurred to us that we would also be creating a powerful lexicographical tool.

Conclusions

Let's get back to **Negroponte**. In his seminal book, *Being Digital*, **Negroponte** writes, "When you read a novel, much of the color, sound and motion come from you. I think the same kind of personal extension is needed to feel and understand what 'being digital' might mean to your life."[4] **JSTOR**, like any other electronic resource in the scholarly communication system, is defined by the "personal extensions" created by individual publishers, librarians and scholars. Those "personal extensions" allow us to take advantage of something that has been digitized (e.g., Humanities literature) and facilitate a change in behavior that is the essence of being digital (e.g., better scholarship).

And while **JSTOR** is but a small pixel in a much larger picture of Humanities scholarship, it is an important example of how older journal literature being digitized can facilitate the system, as a whole, in becoming more digital.

The Impact of Digital Collections on the Humanities: A Librarian's View

by **R. N. Sharma** (Director of the Libraries, West Virginia University)

Introduction

Libraries have been a part of this world for centuries. Who can forget the **Alexandrian Library** of ancient Egypt, and **Universities of Taxila** and **Nalada** in India during the fifth and seventh century A.D., respectively? **Nalada University Library** was the largest in Asia at that time and "at its peak of reputation and international glory" in the seventh century A.D.[5] In the words of the seventh century Chinese traveler, **Hiuen-Tsang** "The libraries [in India] were richly furnished, not only with Orthodox literature but also with Vedic and other non-Buddhist works with treatises on the arts and sciences taught in India at that time."[6] In other parts of the world, including England and Greece, there were many important, excellent and well-known libraries that were destroyed due to various reasons including fire, invasions and/or earthquakes. "Academic libraries have been part of [the] American higher education since its beginning [in] 1636 when **Harvard College** was founded."[7] At present, there are over 3,700 academic libraries in the United States. The real growth and development of American academic and research libraries started after the second World War in 1945, and this growth and development has continued in different forms into the twenty-first century.

The late **Dr. S.R. Ranganathan**, an internationally known Indian mathematician turned librarian and a library educator, predicted in the1950s that technology, including computers, would dominate the libraries in the near future. His prediction has certainly come true because during the last thirty-five years, the libraries have introduced technology, starting with online catalogs, mini computers, shared copy-cataloging systems with **OCLC** dominating the scene, CD ROMs and full-text journal data bases which made the idea of the digital library a reality.

The introduction of World Wide Web (www) in the mid 1990s has certainly brought a kind of revolution in the scholarly communication and for the libraries. It can be said that at present, the Internet is where the real action is, fueled by the rapid advances in digital technologies, computers and communications.[8] We are aware of the fact that many tools are revolutionizing the ways in which we access information across the world's networks.[9] In my view, these changes have come very fast within a short span of thirty to thirty-five years. Therefore, "At the start of the new century, libraries are struggling to absorb innovation and to recognize the implications and meaning of transformation."[10] Technology, with a combination of local resources and external connections, has certainly brought the world of research, libraries and library collections closer to all users, especially those in the Western world. Scholars, librarians, students, and other users are able to do research for their term papers, theses, dissertations and other types of research at a much faster rate than twenty years ago.

Libraries are the heart of all academic institutions. In this information age, libraries have no boundaries; and a majority of the population, especially users of academic libraries, are benefiting from this electronic revolution. The on-line catalog that has replaced the traditional card catalog is a very powerful tool that has brought Humanities collections from many parts of the world to the footsteps of all library users. The availability of on-line catalogs on the Internet in this electronic age is certainly a step in the right direction for the scholars of Humanities. Similarly, abstracting, indexing and full text databases of journals in many languages have opened the journal literature to the users. The hidden treasures of libraries in Humanities have suddenly become available to the users, not only in libraries but also in their homes, dorms, offices and other locations.

"Virtually all of the print content that has moved electronic has been journals [materials] rather than books, with the exception of a few . . . . Digitized versions of books are much more cumbersome and so far have seen limited use. As technology improves, it will [probably] change."[11] But libraries must define their mission in this cyberage because this electronic revolution is still in its infancy. Libraries were not ready for this big change; they were not prepared. Rather, the business class forced this change upon them. Even now, a majority of libraries do not have enough money in their budgets to implement this unplanned and sudden change. It is possible that information technology experts will spend the next ten to twenty years "refining the technology and . . . retrospective digitization of our print heritage of past centuries and of special collections in libraries."[12]

The humanists and other users are aware that many different models of digital libraries have been discussed and marketed since the introduction of the Web in the middle nineties of the last century. They include the on-line versions of catalogs on the Web and "evolving to the creation of digital collections and Web delivery to complement libraries physical collections and delivery."[13] The **University of Michigan** has launched the first Internet public library in the nation. It has 34,000 items and includes reference, periodicals, newspapers, textbooks and materials for young adults. Though limited in materials, this library does give us a glimpse of a new type of Web and digital resources model. **Steven Brill** launched a similar library, now defunct, known as **Contenville.com.** It was a joint venture of **CBS, NBC, Ingram, EBSCO, Bell & Howell** and **Primedia** but its focus was electronic delivery of the material for profit rather than free library service. The youngest player in the digital library field is **Fathom.com** that was started in June 2000. It is a joint project of research libraries of England and the United States, including the **British Library, Cambridge University, London School of Economics, Columbia University, New York Public Library** and the **National Museum of Natural History of the Smithsonian Institute**. It is the first interactive knowledge site for authenticated knowledge and expertise,...aimed at the educated consumer including humanists.[14] Scholars and students of Humanities are known to be real users of library collections and services as compared to scientists who do their experiments more in labs rather than libraries.

For humanists, the library is their lab and an important part of their research. They use Humanities collections in the book form as well as in the electronic form. It is the first time in the history of libraries that such a dramatic change has come after 540 years. The printing press was invented in 1440 that gave birth to the printed book and journal, and provided a new tool for sharing and communicating thoughts with others. Both the book and journal in printed form on paper are still with us. For your information, *Gutenberg Bible*, published in Mainz, Germany, in 1455, was the first printed book in the Western World, and *Journal des Scavans*, published on January 5, 1665, in Paris, France, was the first paper journal published in the world.[15] This electronic revolution has given an opportunity to even many small libraries to access books, journals and other information through the Internet. The users are certainly happy and grateful to the Internet for retrieving information for them so quickly.[16]

The Internet is full of information because of the freedom to add the material by anyone from anywhere, which, in fact, is dangerous, because there are no set standards, no restrictions

continued on page 50

on the materials on the Internet. "The Internet is not a library and will never be a library. All librarians exercise some form of collection development, whereas the Internet exercises none. Further, it has no catalog."[17] But the scholars of Humanities know how to distinguish between authoritative sources and non-authoritative materials on the Internet. They know the difference between the *Bible*, **Shakespeare**, **Bill Clinton** and mixed nuts. They know the difference between good and bad, important and unimportant, true and false. Therefore, they have to apply the same standards to retrieve Humanities collection and information from the Internet for their research needs. They know the difference between books which should be read, not merely surfed.[18] Though a few publishers have started printing and selling eBooks through **netLibrary** and other vendors (and these books are available online), the charm of holding a real book in hand and turning pages with your fingers is not there. "It is easy to concentrate the mind upon it, to linger over it, mull over it, take as long as necessary to try to understand it and appreciate it as compared to reading the book on the computer screen."[19]

We must also keep in mind that "the Humanities,...is about more than the retrieval of facts. It is also about appreciating a poem, understanding an idea, finding significance in an historical event, following the logic of an argument reasoning about human nature, inquiring into ethical dilemmas, making rational and moral judgments, all of which require an exercise of mind that calls upon all the human faculties, and which no technology, however sophisticated, can satisfy."[20] It must be added that "humanities are essentially human enterprise — an enterprise to which human beings have devoted themselves for all of civilized history. The record of that enterprise reposes in the library in the forms of books — a vast multitude of books, including to be sure, many worthless...ones, but also all the great ones. These are the books that sustain our mind and inspire our imagination. It is there that we look for truth, for knowledge, for wisdom. And it is these ideals that we hope will survive our latest revolution."[21] In this information age, according to a recent survey conducted by librarians, they found that electronic Humanities collections are still not being used effectively and as much by many humanists because of lack of time, and because humanists are generally not as technically oriented as scientists and social science scholars, though digital primary sources are being used by many young humanists.[22] It was also discovered that at present very little has been digitized in Humanities. "As more sources become digitized, using the digital version probably will become the norm for humanists."[23] In my view, technology in any form is only a tool for researchers to enrich libraries' collections and humanistic values rather than an end. Therefore, all users should use it very wisely.

Many scholars are of the opinion that technology will solve problems of all libraries and that all library collections, including the Humanities collections, will soon be accessible through the Internet to everyone. Even the **Telecommunications Act of 1996** was written with the information equity in the new electronic age as the goal. Earlier the **American Library Association** and the **American Society for Information Science** had also passed similar resolutions for equal access to information in 1995 and 1992, respectively. But this goal has not been met. **Margaret Dalton** in an article in *Library Journal* wrote, "There is evidence that inequity may be increasing."[24] One of the main reasons for this inequity is lack of proper budgets for a majority of libraries to pay for databases in academic as well as public libraries. Many libraries outside central cities of the United States today do not even have the Internet connection, and many rural areas do not even have libraries. Grayson, Kentucky, is one of the towns in the United States without any library. Twenty-five thousand (25,000) residents of Grayson unanimously rejected a proposal last month to build the first library in the county. According to **Mary Jo Lynch**, Director of Research at the **American Library Association**, about three percent of the population in the United States is without any library service. It will remain this way until some strong measures are taken, including commitment for funding on a regular basis to support libraries. Under the present circumstances, we cannot even think that technology will solve problems of all libraries. First, we must have healthy libraries; and only then we can plan to introduce technology for access and other purposes. On the other hand, a vast majority of the world's information is not in electronic form and will never be [in the near future] because of the gap in nations' ability to invest money in electronic format, especially in third-world countries.[25] I have visited libraries in Africa, Asia, Middle East and Latin America, and must say they have no books, no journals and not even enough libraries to serve their population; how can they think of technology in libraries? To the poor people of many countries, food is more important than books, journals and technology. Therefore, under the present circumstances, we cannot talk about equal access to information in libraries.

We are aware that during the last thirty years academic libraries have seen more technological changes as compared to the first seventy years of the twentieth century. But technology is still very expensive, including full text journals databases.[26] Therefore, libraries are forming partnerships to cut the cost through consortia, merger of computer centers with libraries and hiring of more technical staff including systems librarians. All libraries, including academic libraries in the United States, with the exception of about one hundred research libraries, face difficult problems of allocating "increasingly inadequate resources between the present and future. The traditional published scholarly literature remains of critical importance, and its costs and volume continue to increase out of control."[27] In addition, there are many new issues that libraries must handle in a very professional manner. They include: "how to describe multi-media digital information effectively and affordable, how to archive digital information, how to address questions of authenticity and integrity,[and] how to deal with the issue of intellectual property."[28] According to **Colin Steele**, an Australian library administrator, "unfortunately, many U.S. librarians remain largely ignorant of trends outside their continent [because] U.S. standards and influences are applied, instead of international standards, to American libraries in this global age of information."[29] We need "a more structured global alliance in the 21st century for equitable access to information...[otherwise] we could well end up with a global information village [for humanists] based on the lowest commercial common denominators."[30]

Problems and Solutions

As mentioned earlier, libraries were never prepared to enter the information age but the progress of technology has been tremendous. Though the Internet has done wonders to retrieve quick information through online catalogs and full-text journal databases, it is also responsible for creating a gap between "haves" and "have nots." Many libraries cannot afford to introduce technology in full swing because of lack of money. There has not been a substantial increase in the library book and periodicals budgets for many libraries, with the exception of about one hundred research libraries in the United States, where journal prices have gone up by 200 percent since 1984. In fact, materials budgets have been cut to pay for the introduction of technology. Full-text journal databases are still very expensive and do not cover all scholarly journals. You have access to the materials as long as you pay the high price but you do not have ownership. You are not allowed to have back issues of journals with the exception of a few companies like **JSTOR** and **Gale Group**, who are now offering access; but they are also very expensive. Digitization is certainly a very expensive venture. Moreover, publishing companies have the copyright to journals; therefore, you cannot digitize your collections. Libraries are in a fix and venders/companies are making huge profits. Third world countries are still struggling to maintain their collections and cannot even afford to have online catalogs. How can you talk about equal opportunity to access information and collections in the global age?

Library administrators are of the view that "It is easy to contemplate the new opportunities; it is stimulating to discuss them, but it is hard to pay for them. Regardless of our rhetoric, our budgets reveal our real priorities. It was...unfortunate that the technological challenge for libraries arose as libraries were experiencing the worst period of inflation and constrained resources in memory. There could hardly have been a more frustrating time in the modern history of libraries to have encountered the challenges and opportunities of creating a new library paradise."[31]

Americans spend more money on entertainment than on libraries, and "the state of California spends more money on its prisons rather than on higher education, including academic libraries."[32] In addition to lack of money and full support for digital collections, there is another problem with digital libraries that we cannot ignore. "If I put a book in a room and close the door [and] open the door in 500 years, the information contained in the book will still be available. If I do that for any electronic storage device we now know about, the same will not be true, not even perhaps in ten years. The in-

continued on page 52

formation may still be in electronic form, but we are unlikely to be able to read it with our newer technology."[33] There is yet no long-term commitment for electronic format as there is for the printed materials. We must solve the preservation and other problems before jumping into the fast moving wagon. One of the solutions to the above-mentioned problems is that more money should be made available, but at present chances of that are very slim. I have been a library administrator for over twenty years, and in my view, we may be in the electronic information age, but we are still far away from the reality of having access to all collections including Humanities collections to support research and curriculum needs of our users. We are hurting, and it has affected the humanists and Humanities collections more than anyone else.

The National Electronic Library

The other solution is to have a **National Electronic Library** to serve all libraries on equal footing. It should be run either by a non-profit organization or the Federal government.[34] Our former Vice-President, **Mr. Albert Gore**, pushed for the information superhighway, and in 1995, **Mr. Newt Gingrich**, a former Speaker of the U.S. House of Representatives said, "We will strive for every child in America, no matter how rural, no matter how poor, to have electronic access to the world of knowledge. The work done at libraries across the country is the most cost effective investment in learning we can make."[35] The lip-service has not worked because no proper investments have been made in a majority of libraries across the nation. Under the present circumstances, if we want to have three fast lanes on the information super highway rather than one fast lane, one slow lane, and a side lane, we have to take control and invest because "the Federal government believes that a strong electronic infrastructure is essential to economic growth [and equal information access] in the next [few] decades."[36]

Budget crises for academic libraries have reached a new height due to the introduction of technology. The dollar has lost up to 70 percent of its buying power during the last eight to ten years due to the rising prices of books and journals. "If the present trends continue, by the year 2026 the acquisitions budgets of our finest libraries will have only 20 percent buying power, but only 2 percent of the total information available in the world for our users by the year 2001 as compared to twenty years ago."[37] Therefore, "if we don't try to create an infrastructure which is technically and electronically available to every one, we will have missed an important opportunity to change our society."[38]

The proposed new electronic library should be selective and focus on expensive basic research materials including journal databases, especially in the field of Humanities. Libraries in the United States spend over one billion dollars on acquisitions every year. Every academic and research library in the nation should contribute ten percent of its acquisitions budget to support the national electronic library. It will help to turn the dream of free access to information into a reality for the benefit of our users. We also need more people like the late **Andrew Carnegie** because contributions of **Bill Gates** and others to all types of libraries are not enough. But one thing is certain, that libraries of the twenty-first century will be different from libraries of the nineteenth and twentieth centuries. They will be more access oriented rather than only ownership oriented.[39]

Finally, the United States has made a good beginning with the introduction of technology in libraries, and the Humanities have certainly felt the impact of the digital collections. But I can assure you that books will not be replaced in your and my lifetime, and "humanists will continue to view the printed book as the supreme embodiment of the text."[40] Library leaders predict that "the virtual, global, digital gateway libraries we are striving to plant today will be nurtured and will grow and flower to serve students and faculty [and others] with quality,"[41] in the present millennium. The dream of digital library will become a reality for American libraries, provided we plan for the future jointly, invest wisely and set high standards for equal distribution of knowledge and resources in all subjects, including the Humanities, to complement and not supplement the existing collections for all libraries of this great nation.

Endnotes

1. Martin, Richard, *The Industry Standard*, "The Nasruddin Model," August 28, 2000, p. 11.
2. Bowen, William G., "1994 President's Report," The Andrew W. Mellon Foundation, Online *http://www.mellon.org/arpr94.html#js94ar*.
3. "Contributing to the History of Words and Ideas," *JSTORNews*, vol. 4, issue 3, November 2000 *http://www.jstor.org/news/2000.11/words.link.html*.
4. Negroponte, Nicholas, *Being Digital*, Alfred A. Knopf Inc., 1995, p. 8
5 Trehan, G.L. *Learning and Libraries in Ancient and Medieval India*. Chandigarh: Library Literature House, 1975, p.34.
6. Thomas, Walters. *Yuan Chwng's Travels in India, 629-645 A.D.* London: Royal Asiatic Society, 1904-1905, p. 385-386.
7. Moran, Barbara. *Academic Libraries: The Changing Knowledge Centers of Colleges and Universities*. Washington, D.C.: Association for the Study of Higher Education, 1984, p.1.
8. Lynn, M. Stuart. "Digital Preservation and Access. Liberals and Conservatives." In *Going Digital: Strategies for Access, Preservation, and Conversion of Collections to a Digital Format*, edited by Donald L. DeWitt. New York: Haworth Press, 1998, p.56.
9. Ibid, p.56.
10. Lynch, Clifford. "From Automation to Transformation: Forty Years of Libraries and Information Technology in Higher Education." *EDUCAUSE Review* 35 (January-February 2000):p. 62.
11. Ibid., p.64.
12. Ibid., p. 67.
13. "Libraries in Cyberspace." *Library Journal* 125 (August 2000): p.47.
14. Ibid. , p. 47.
15. Himmelarb, Gertrude. "Revolution in the Library." *American Scholar* 66 (1997): p. 198. See also Sharma, R.N. ADevelopment of Library and Information Science Periodicals in Asia, with Emphasis on South Asia: Problems and Solutions. *IFLA Journal* 26 (2000) No. 1, p. 34.
16. Himmelarb, Gertrude. "Revolution in the Library." p. 200.
17. Cohen, Laura. Librarians on the Internet: The Search For Quality Begins. *Choice* 34 (Supplement 1997): p. 6.
18. Himmelarb, Gertrude. "Revolution in the Library." p. 203.
19. Ibid., p. 203.
20. Ibid., p. 204.
21. Ibid., p. 204.
22. Wiberley, Stephen E. Jr., and William G Jones. "Time and Technology: A Decade Long Look at Humanist Use of Electronic Information Technology. *College & Research Libraries* 61 (September 2000), p. 423.
23. Ibid., p. 429.
24. Dalton, Margaret Streg. "Old Values For the Information Age." *Library Journal* 125 (November 1, 2000): p. 43.
25. Ibid., p. 44.
26. Rapple, Brendan. "The Electronic Library." *Cause/Effect* 20 (Spring 1997): p. 45.
27. Griffiths, Jose-Marie. "Deconstructing Earth's Largest Library." *Library Journal*. 125 (August 2000): p. 46.
28. Ibid., p. 46.
29. Steel, Colin. "Forging Global Information Equity." *Library Journal* 125 (July 2000): p. 46.
30. Ibid., p. 47.
31. Campbell, Jerry D. "Building Xanadu: Creating the New Paradise." In *Going Digital: Strategies for Access, Preservation, and Conversion of Collections to a Digital Format*, edited by DeWitt, Donald L., New York: The Haworth Press, 1998, p. 38.
32. Greenberg, Douglas. "Return to the Valley of Dolls: Reflections on Changing Lanes Along the Information Superhighway." *In Going Digital: Strategies for Access, Preservation, and Conversion of Collections to a Digital Format*, edited by Dewitt, Donald L., New York: The Haworth Press, 1998, p. 52.
33. Graham, Peter S. "Long-Term Intellectual Preservation." In *Going Digital: Strategies for Access, Preservation, and Conversion of Collections to a Digital Format*, edited by Dewitt, Donald L., New York: The Haworth Press, 1998, pp. 87-88.
34. Hawkins, Brian L. "Creating the Library of the Future: Incrementalism Won't Get Us There!" *Serials Librarian*, 24 (1994): p. 18.
35. Quoted in *Betty Turock's Inaugural Address*, President of the American Library Association, 1995-1996, p. 2.
36. Hawkins, Brian L. "Creating the Library of the Future...," p. 18.
37. Ibid., p. 21.
38. Ibid., p. 27
39. Ibid., p. 46.
40. Anghelescu, Hermina G.B., and Davis, Donald G., Jr., "Books and Libraries in the New Millennium: A Review Essay." *Choice*, 37 (September 1999), p. 91.
41. Neal, James G. "Academic Libraries: 2000 and Beyond." *Library Journal* 121 (July 1996): p. 63.